

	Search Text	DBs	Time Stamp
1	(elastomer or rubber) and clay and nanocomposite and intercalat\$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/24 13:24
2	(524/445).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 11:36
3	(rubber) and clay and nanocomposite and exfoliat\$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 12:22
4	((("2531427") or ("2531440") or ("3971746") or ("4569923") or ("4739007") or ("4810734") or ("4882090") or ("5034470") or ("5110501") or ("5334241") or ("5895776") or ("5552469") or ("5578672") or ("5721306") or ("5840796") or ("5883173") or ("6124365"))).PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 12:23
5	dias.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 12:38
6	dias.in. and nanocomposite	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 12:38
7	("5576372").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 14:00
8	"5576372"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 14:00
9	("6103817").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 14:05
10	"6103817"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 14:05
11	(524/186).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/24 13:24
12	(525/332.7).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/24 13:25
13	(525/332.5).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/24 13:25
14	(525/332.9).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/24 13:26
15	(525/332.8).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/24 13:26

	Search Text	DBs	Time Stamp
16	(525/333.3).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/24 13:26

TI Structure and properties of nitrile rubber (NBR)-clay nanocomposites
by co-coagulating NBR latex and clay aqueous suspension

AB Nitrile rubber (NBR)-clay nanocomposites were prepd. by
co-coagulating the NBR latex and clay aq. suspension. Transmission
electron microscopy showed that the silicate layers of clay were
dispersed in the NBR matrix at the nano level and had a planar
orientation. X-ray diffraction indicated that there were some
nonexfoliated silicate layers in the NBR-clay nanocomposites.
Stress-strain curves showed that the silicate layers generated evident
reinforcement, modulus, and tensile strength of the NBR-clay
nanocomposites, which were significantly improved with an increase in
the amt. of clay, and strain-at-break was higher than that of the gum
NBR vulcanizate when the amt. of clay was more than 5 phr. The
NBR-clay nanocomposites exhibited an excellent gas barrier property;
the redn. in gas permeability in the NBR-clay nanocomposites can be
described by Nielsen's model. Compared with gum NBR vulcanizate, the
oxygen index of the NBR-clay nanocomposites increased slightly. The
feasibility of controlling rubber flammability via the nanocomposite
approach needs to be evaluated further.

ACCESSION NUMBER: 2003:655918 CAPLUS

TITLE: Structure and properties of nitrile rubber
(NBR)-clay nanocomposites by co-coagulating NBR
latex and clay aqueous suspension

AUTHOR(S): Wu, You-Ping; Jia, Qing-Xiu; Yu, Ding-Sheng; Zhang,
Li-Qun

CORPORATE SOURCE: Key Laboratory for Preparation and Processing of Novel
Polymer Materials, Beijing University of Chemical
Technology, Beijing, 100029, Peop. Rep. China

SOURCE: Journal of Applied Polymer Science (2003), 89(14),
3855-3858

CODEN: JAPNAB; ISSN: 0021-8995

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Processing property of clay/SBR nanocomposites

AB By rubber process anal. (RPA) and Monsanto capillary rheometer the Payne effect and processing rheol. property of the clay/SBR nanocomposite (NC) were investigated. Carbon black (N330)/SBR compd. and micron clay/SBR compd. were also discussed as a comparison. The expt. results indicated that the modulus of the clay/SBR NC increased remarkably with the increase of the filler loading and there were Payne effect in the compds. attributed to the network of filler. It had the same trend as the N330/SBR and micron clay/SBR compds. With the higher ratio and anisotropy the dispersed clay could restrain strongly the rubber mol. chain movement, which resulted in its highest modulus among three compds. in our research when the same strain and the same shear rates. By adding the interface agent and improving the processing conditions the amt. of reinforcement cells in clay/SBR NC were mounted up, and this made the NC material higher module. The processing property of clay/SBR NC was better with small extrusion swelling, easy blending and stable dimension.

ACCESSION NUMBER: 2003:604264 CAPLUS

TITLE: Processing property of clay/SBR nanocomposites

AUTHOR(S): Zhang, Huifeng; Wang, Yiqing; Wu, Youping; Zhang, Liqun

CORPORATE SOURCE: Key Laboratory of Controllable Chemistry Reaction of Educational Department, Beijing University of Chemical Technology, Beijing, 100029, Peop. Rep. China

SOURCE: Hecheng Xiangjiao Gongye (2003), 26(4), 233-237

CODEN: HXGOEA; ISSN: 1000-1255

PUBLISHER: Hecheng Xiangjiao Gongye Zazhi Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

products with rubbers

RL: MOA (Modifier or additive use); USES (Uses)

(rubber nanocomposite compns. contg. org.-modified

layered clay minerals and maleic anhydride compds.)

ACCESSION NUMBER: 2003:596661 CAPLUS

DOCUMENT NUMBER: 139:150924

TITLE: Rubber compositions containing organic-modified
layered clay minerals with good dispersion

INVENTOR(S): Maruyama, Tsukasa; Ishikawa, Kazunori; Amino, Naoya

PATENT ASSIGNEE(S): Yokohama Rubber Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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<u>JP 2003221473</u>	A2	20030805	<u>JP 2002-25858</u>	20020201
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PRIORITY APPLN. INFO.: JP 2002-25858 20020201

ACCESSION NUMBER: 2003:590853 CAPLUS

DOCUMENT NUMBER: 139:150919

TITLE: A process for preparing nanocomposite from
functionalized diene-based elastomer and layered clay

INVENTOR(S): Ajbani, Manoj; Geiser, Joseph Frank; Parker, Dane
Kenton

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 15 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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<u>US 2003144401</u>	A1	20030731	<u>US 2001-37009</u>	20011221
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PRIORITY APPLN. INFO.: US 2001-37009 20011221

ACCESSION NUMBER: 2003:572041 CAPLUS
TITLE: Structure and properties of natural rubber and
modified montmorillonite nanocomposites
AUTHOR(S): Magaraphan, Rathanawan; Thaijaroen, Woothichai;
Lim-Ochakun, Ratre
CORPORATE SOURCE: The Petroleum and Petrochemical College, Chulalongkorn
University, Bangkok, 10330, Thailand
SOURCE: Rubber Chemistry and Technology (2003), 76(2), 406-418
CODEN: RCTEA4; ISSN: 0035-9475
PUBLISHER: American Chemical Society, Rubber Division
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2003:560798 CAPLUS
TITLE: Natural rubber-based nanocomposites by latex
compounding with layered silicates
AUTHOR(S): Varghese, Siby; Karger-Kocsis, J.
CORPORATE SOURCE: Institute for Composite Materials, Department of
Materials Science, Kaiserslautern University of
Technology, Kaiserslautern, D-67663, Germany
SOURCE: Polymer (2003), 44(17), 4921-4927
CODEN: POLMAG; ISSN: 0032-3861
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2003:530651 CAPLUS
TITLE: Morphology and rheological properties of
nanocomposites based on nitrile rubber and
organophilic layered silicates
AUTHOR(S): Kim, Jin-tae; Oh, Taeg-su; Lee, Dong-ho

CORPORATE SOURCE: Research Institute of Industrial Science and
Technology, Pohang, 790-330, S. Korea
SOURCE: Polymer International (2003), 52(7), 1203-1208
CODEN: PLYIEJ; ISSN: 0959-8103
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2003:488625 CAPLUS
DOCUMENT NUMBER: 139:54173
TITLE: Nanocomposite and exfoliated clay platelets formed
in situ within elastomer for tires
INVENTOR(S): Parker, Dane Kenton; Larson, Brent Kevin; Yang,
Xiaoping
PATENT ASSIGNEE(S): The Goodyear Tire & Rubber Company, USA
SOURCE: Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
<u>EP 1321489</u>	A1	20030625	<u>EP 2002-28118</u>	20021218
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
<u>JP 2003192833</u>	A2	20030709	<u>JP 2002-372736</u>	20021224
<u>PRIORITY APPLN. INFO.:</u> <u>US 2001-37539</u> A 20011221				
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT				

ACCESSION NUMBER: 2003:395381 CAPLUS

DOCUMENT NUMBER: 139:118524
TITLE: Vulcanization kinetics of natural rubber-organoclay
nanocomposites
AUTHOR(S): Lopez-Manchado, M. A.; Arroyo, M.; Herrero, B.;
Biagiotti, J.
CORPORATE SOURCE: Institute of Polymer Science and Technology, Madrid,
28006, Spain
SOURCE: Journal of Applied Polymer Science (2003), 89(1), 1-15
CODEN: JAPNAB; ISSN: 0021-8995
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2003:146523 CAPLUS
DOCUMENT NUMBER: 138:189235
TITLE: Composition of modified butyl rubber containing
layered clay minerals
INVENTOR(S): Maruyama, Tsukasa; Sekine, Yuko; Ishikawa, Kazunori
PATENT ASSIGNEE(S): Yokohama Rubber Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003055514	A2	20030226	JP 2001-244337	20010810
<u>PRIORITY APPLN. INFO.:</u>			<u>JP 2001-244337</u>	20010810

ACCESSION NUMBER: 2002:964426 CAPLUS
DOCUMENT NUMBER: 138:40530
TITLE: Low permeability nanocomposites and their formation

for innertubes

INVENTOR(S): Dias, Anthony J.; Tsou, Andy H.; Chung, David Y.;

Weng, Weiqing

PATENT ASSIGNEE(S): Exxonmobil Chemical Patents Inc., USA

SOURCE: PCT Int. Appl., 40 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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<u>WO 2002100936</u>	A1	20021219	<u>WO 2002-US16797</u>	20020529
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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,
TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-297915P P 20010613

OTHER SOURCE(S): MARPAT 138:40530

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2002:964425 CAPLUS

DOCUMENT NUMBER: 138:40529

TITLE: Low permeability nanocomposites and their formation
for innertubes

INVENTOR(S): Dias, Anthony J.; Gong, Caiguo; Weng, Weiqing; Chung,
David Y.; Tsou, Andy H.

PATENT ASSIGNEE(S): Exxonmobil Chemical Patents Inc., USA

SOURCE: PCT Int. Appl., 62 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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<u>WO 2002100935</u>	A1	20021219	<u>WO 2002-US16796</u>	20020529
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GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,
TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-296873P P 20010608

US 2001-297915P P 20010613

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2002:964415 CAPLUS

DOCUMENT NUMBER: 138:40096

TITLE: Low permeability nanocomposites

INVENTOR(S): Tsou, Andy H.; Dias, Anthony J.

PATENT ASSIGNEE(S): Exxonmobil Chemical Patents Inc., USA

SOURCE: PCT Int. Appl., 29 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

WO 2002100923 A2 20021219 WO 2002-US16794 20020529

WO 2002100923 A3 20030327

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
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TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-296873P P 20010608

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(FILE 'HOME' ENTERED AT 11:56:33 ON 22 SEP 2003)

FILE 'CAPLUS, EUROPATFULL' ENTERED AT 11:57:38 ON 22 SEP 2003

L1 178 S CLAY AND RUBBER AND NANOCOMPOSITE
L2 0 S L1 AND MODIFIED RUBBER
L3 0 S L1 AND FUNCTIONALIZED RUBBER